



(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 839 571 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
06.05.1998 Bulletin 1998/19

(51) Int Cl. 6: B01F 9/00

5-1998

(21) Application number: 97830517.5

(22) Date of filing: 14.10.1997

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE
Designated Extension States:
AL LT LV RO SI

(30) Priority: 05.11.1996 IT MI962298

(71) Applicant: FAST S.p.A.
I-20092 - Cinisello Balsamo (Milano) (IT)

(72) Inventor: Ali' Reza, Arabinia, c/o Fast S.p.A.
20092 Cinisello Balsamo (Milano) (IT)

(74) Representative: Cicogna, Franco
Ufficio Internazionale Brevetti
Dott.Prof. Franco Cicogna
Via Visconti di Modrone, 14/A
20122 Milano (IT)

(54) Device for mixing paints in paint vessels

(57) The present invention relates to an improved device for mixing paints in paint vessels and the like, comprising a holding construction (1), inside which is rotatably supported a horizontal pin (3), in turn supporting a pulley (4) coupled to driving means (6) for turning the pulley (4) about the horizontal pin.

An angular arm (10) coupled to the pulley (4) and rotatably supporting a vertical pin (11) to which is coupled a paint vessel supporting plate (12) is moreover provided.

The paint vessel supporting plate (12) is caused to turn by friction engaging it with an abutment surface.

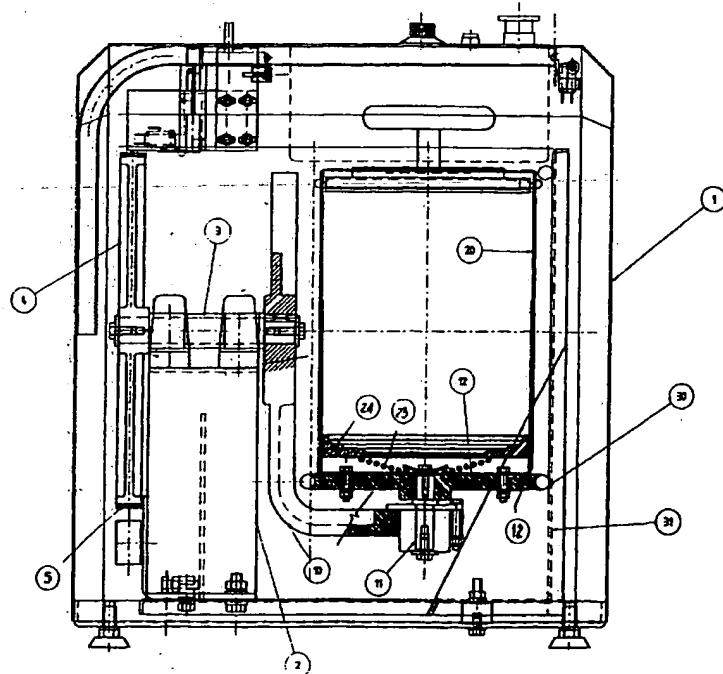


FIGURA 1

Description**BACKGROUND OF THE INVENTION**

The present invention relates to an improved device for mixing paints in paint vessels and the like.

As is known, for properly mixing paints held in paint vessels or cans are conventionally used rather complex apparatus which, practically, provide vibrations suitable to mix the paint components.

The prior apparatus, however, have a comparatively high cost and size, due to the construction principle used therein, and, for this reason, said apparatus have not been broadly practically used.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to overcome the above mentioned drawbacks, by providing an improved device for mixing paints in paint vessels and the like, allowing the paint to be optimally mixed, by properly causing the paint vessels to be rotatively and revolutionally driven.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a paint mixing device which is very simple construction wise and which, accordingly, is susceptible to be broadly used by paint users.

Another object of the present invention is to provide such a paint mixing device which is very reliable and safe in operation, can be easily made starting from easily commercially available elements and materials, and which, moreover, is very competitive from a mere economic standpoint.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by an improved device for mixing paints in paint vessels and the like, characterized in that said device comprises a holding construction, inside of which is rotatably supported a horizontal pin in turn supporting a pulley coupled to driving means adapted to turn said pulley about said horizontal pin.

A rotary angular arm coupled to said pulley and supporting a vertical pin to which is coupled a paint vessel supporting plate is moreover provided.

Said paint vessel supporting pin is rotatively driven by friction engaging it with an abutment friction surface.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the invention will become more apparent hereinafter from the following detailed disclosure of a preferred, though not exclusive, embodiment of an improved device for mixing paints in paint vessels and the like, which is shown, by way of an indicative, but not limitative, example, in the accompanying drawings, where:

Figure 1 is a cross-sectional view schematically illustrating the subject device, as cross-sectioned along a vertical plane;

Figure 2 is a side view illustrating the improved device according to the invention;

Figure 3 is a further schematic view illustrating the paint vessel supporting plate and clamping means for clamping the paint vessels;

Figure 4 illustrates the paint vessel clamping means and coupling slots thereof;

Figure 5 is a top plan view illustrating the paint vessel cover in a locked condition thereof;

Figure 6 is an elevation view illustrating the paint vessel cover in a locked condition thereof;

Figure 7 is a top plan view illustrating the paint vessel cover in a released condition thereof;

and

Figure 8 is an elevation view illustrating the paint vessel cover in a released or unlocked condition thereof.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the number references of the above mentioned figures, the improved device for mixing paints in paint vessels and the like, according to the present invention, comprises a holding construction 1, inside of which is arranged a supporting bracket 2, extending for a vertical length and ending with a horizontal pin 3, which is rotatably supported.

At one end of said horizontal pin 3 is coupled a pulley 4, on which a pulley belt 5 is entrained which is driven by a motor 6 so as to cause said pulley to turn about an axis defined by said horizontal pin 3.

At the other end of the pin 3, which is rotatively rigid with said pulley 4, is coupled an angular arm 10 which, at the end portion thereof not coupled to said pulley, is provided with a vertical pin 11, which is also rotatably supported, and, accordingly, being perpendicular to the horizontal pin 3.

To the pin 11 is rigidly coupled a plate 12, provided with means for clamping thereon a paint vessel, said clamping means being generally indicated by the reference number 20.

The paint vessel clamping means 20 comprise a cylindric body 21, in which a paint vessel 22 can be removably engaged.

On the inner bottom of the cylindric body 21, an urging spring 23 is provided, said spring operating on a plate 24 provided for supporting the bottom portion of the paint vessel 22 to cause it to be upwardly pushed.

In order to restrain the paint vessel, is provided a cover 30 having a substantially octagonal configuration and supporting a handle 31, which can turn with respect to said cover and being coupled, on the surface thereof opposite to the cover, to an elongated small plate 32 projecting from said cover and ending with locking elements

33 which can be rotatively introduced into pairs of opposite slots 34 formed on the cylindric body 21.

In order to turn said plate 12, friction turning means are provided, which are advantageously constituted by a rubber ring 30, coupled to said plate and friction engaging with an abutment surface 31 defining a side wall of the holding body 1.

Thus, with the disclosed arrangement, by operating the motor 5, the pulley 4 is caused to turn.

Accordingly, the paint vessel will be rotated about a horizontal axis by said angular arm 10.

The friction engagement provided by said rubber ring 30 will cause the plate 12 to turn about an axis perpendicular to the above mentioned rotary axis, thereby the paint vessel will be subjected to a double rotation, about two mutually perpendicular axes.

In this manner, is obtained a combination of rotary and revolution movements, providing a perfect mixing of the paint material held in its respective paint vessel.

From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects.

In particular, the fact is to be pointed out that a very simple mixing device has been provided which, by a single motor, can provide a rotary movement about two mutually perpendicular axes, without requiring complex gear couplings.

In practicing the invention, the used materials, provided that they are compatible to the intended use, as well as the contingent size and shapes, can be any, depending on requirements.

Claims

1. An improved device, for mixing paints in paint vessels and the like, characterized in that said device comprises a holding construction, inside of which is rotatably supported a horizontal pin, in turn supporting a pulley, coupled to driving means for rotating said pulley about said horizontal pin and that is provided an angular arm coupled to said pulley and rotatably supporting a vertical pin to which a paint vessel supporting plate is coupled, said paint vessel supporting plate being rotated by friction engaging it with an abutment friction surface.
2. An improved device, according to the preceding claim, characterized in that said horizontal pin is arranged at a vertical arm of a bracket rigid with said holding construction or body.
3. An improved device, according to one or more of the preceding claims, characterized in that said motor means comprise a motor driving a belt entrained on said pulley.
4. An improved device, according to one or more of

the preceding claims, characterized in that said vertical pin is supported at an end portion of said angular arm not coupled to said pulley.

5. An improved device, according to one or more of the preceding claims, characterized in that said device further comprises, on said paint vessel supporting plate, means for removably clamping said paint vessel.
6. An improved device, according to one or more of the preceding claims, characterized in that said paint vessel removable clamping means comprise a cylindric body on a bottom of which is provided a plate urged by an urging spring, said device further including a cover rotatably supporting a handle coupled to an elongated small plate ending with locking elements which can be rotatably engaged in opposite slots formed in said cylindric body.
7. An improved device, according to one or more of the preceding claims, characterized in that on said plate friction means are provided, said friction means comprising a rubber ring.

25

30

35

40

45

50

55

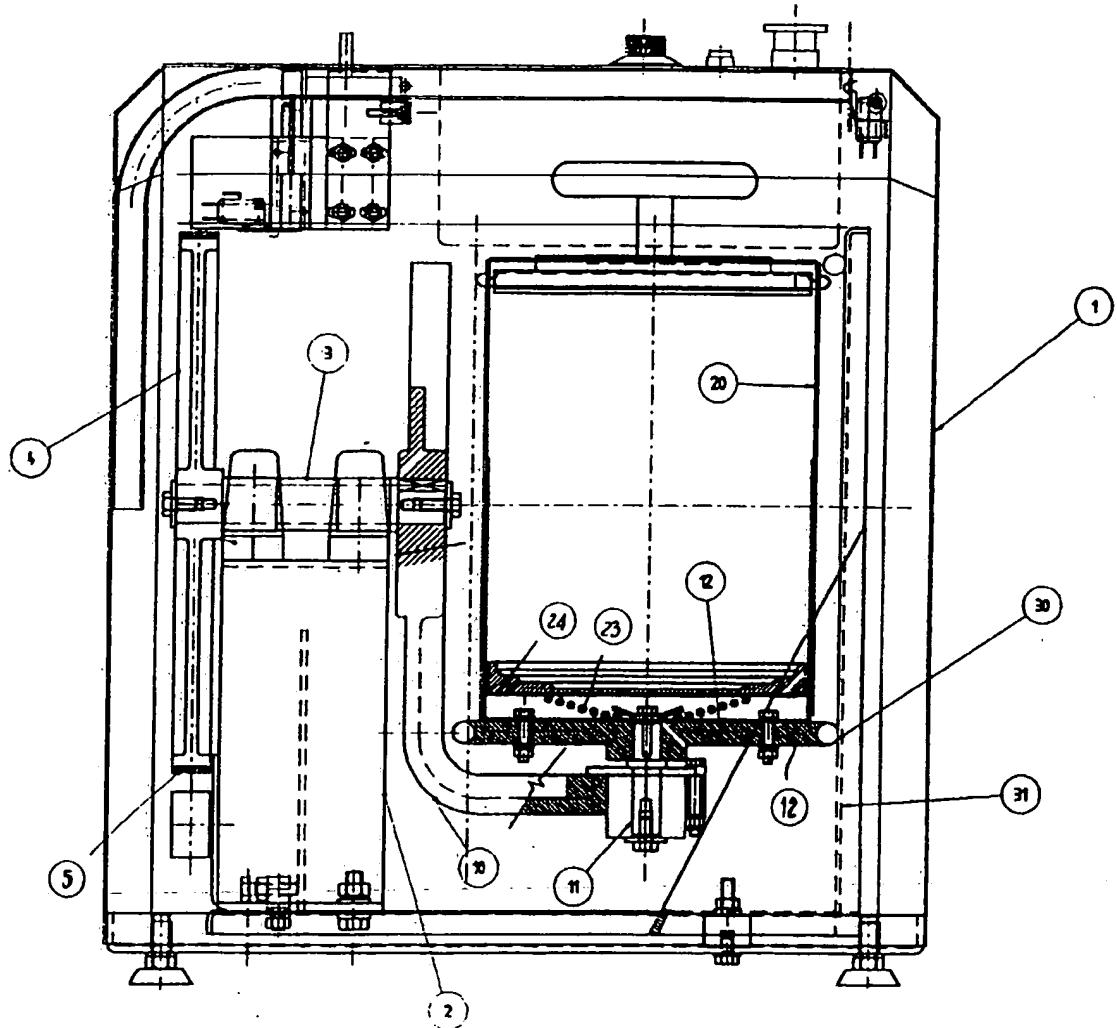


FIGURA 1

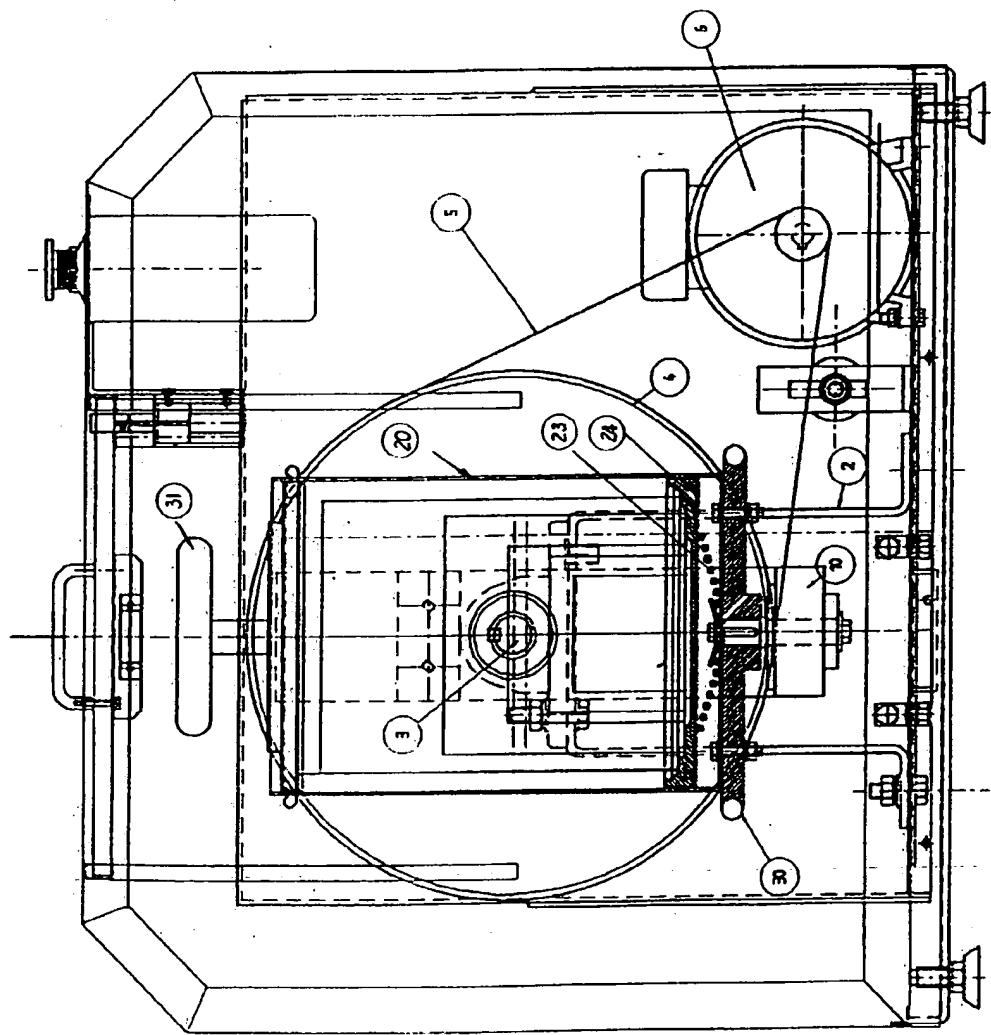
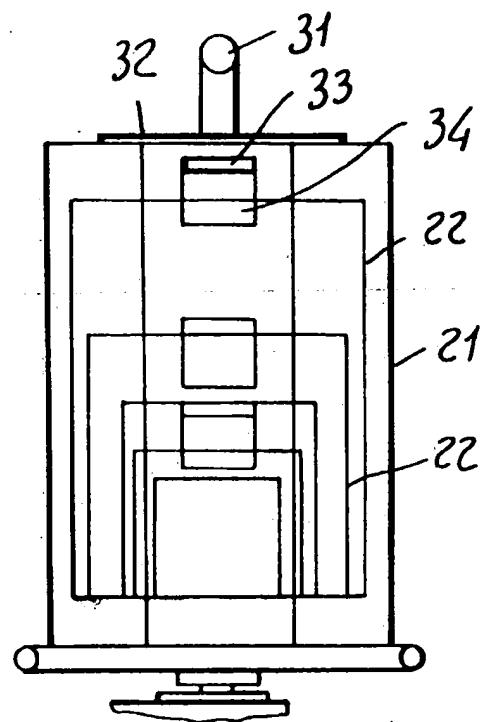
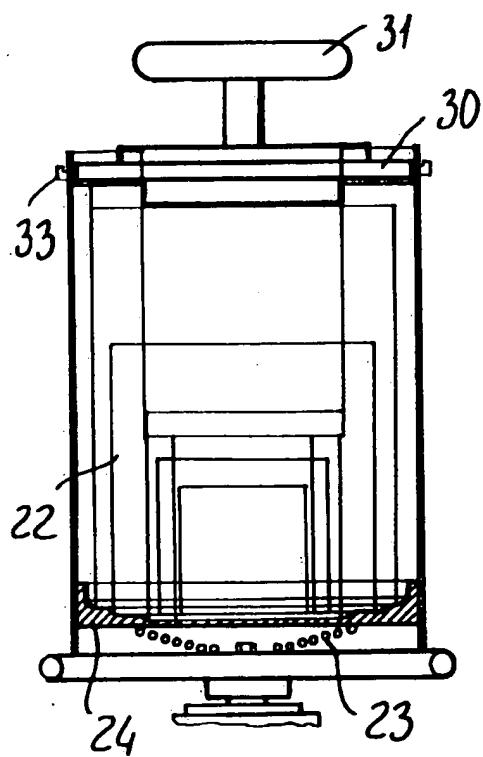
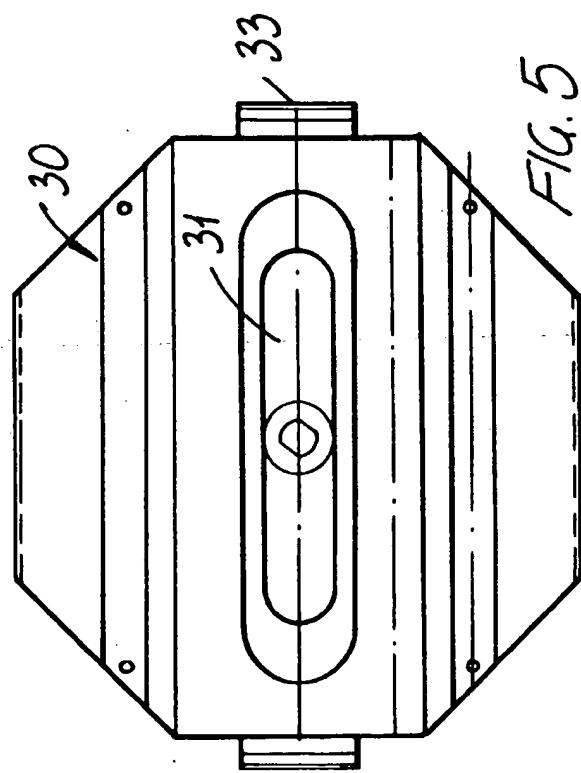
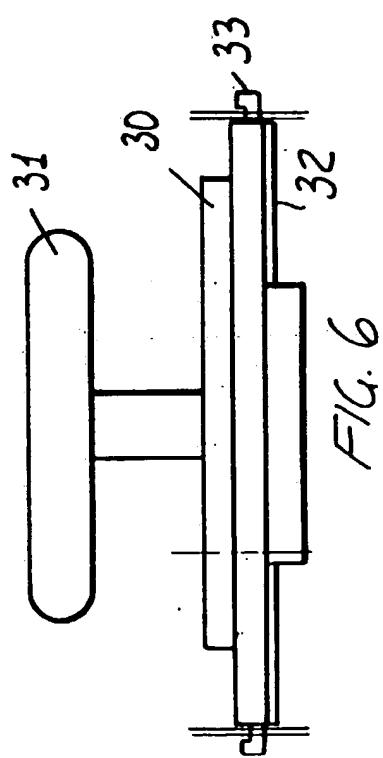
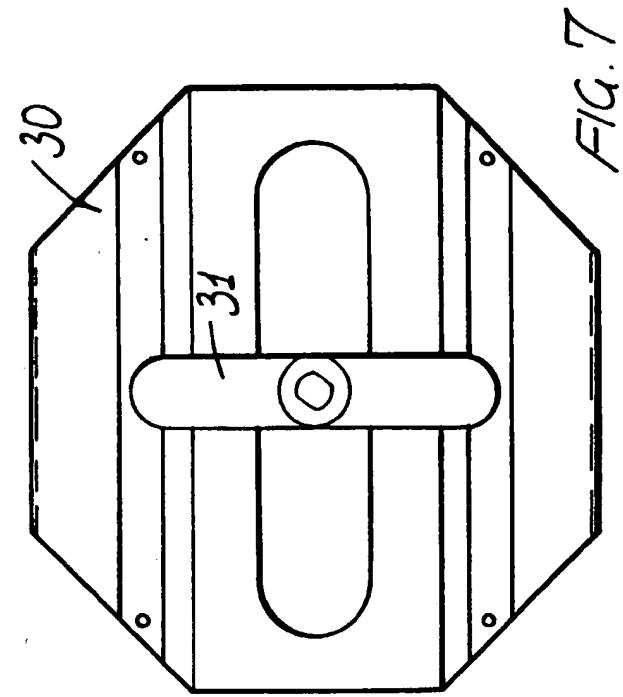
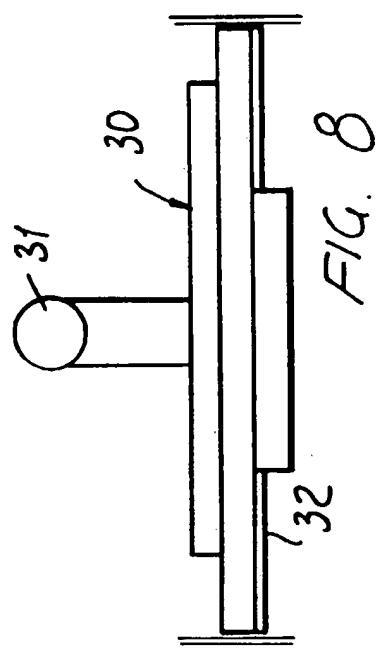


FIGURA 2







European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 83 0517

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 3 880 408 A (KARJALAINEN PENTTI) * abstract; claims; figures * * column 2, line 36 - column 3, line 48 *	1-7	B01F9/00
X	WO 91 08045 A (GEORGE FETHERS & CO TRADING PT) * abstract; claims 1,4; figures 1-4 * * page 3, line 25 - page 5, line 3 *	1-7	
A	US 3 346 241 A (SCHUBERT) * abstract; claims 1,7; figures * * column 2, line 62 - column 3, line 8 *	1,7	
A	EP 0 706 820 A (COROB SRL) * abstract; figure 2 *	1	
A	EP 0 671 204 A (UNITED COATINGS INC) * abstract; claim 1; figure 2 *	1	
A	EP 0 617 998 A (COROB SRL) * abstract; figure 1 *	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE	Date of completion of the search 13 February 1998	Examiner Dugdale, G	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			